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PROTECT YOUR PINES...

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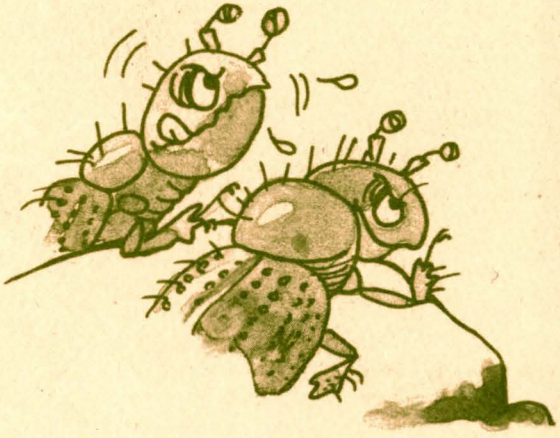
Ranger
Timber Staff
Timber Tech
Range Tech
Clerk 1
Clerk 2

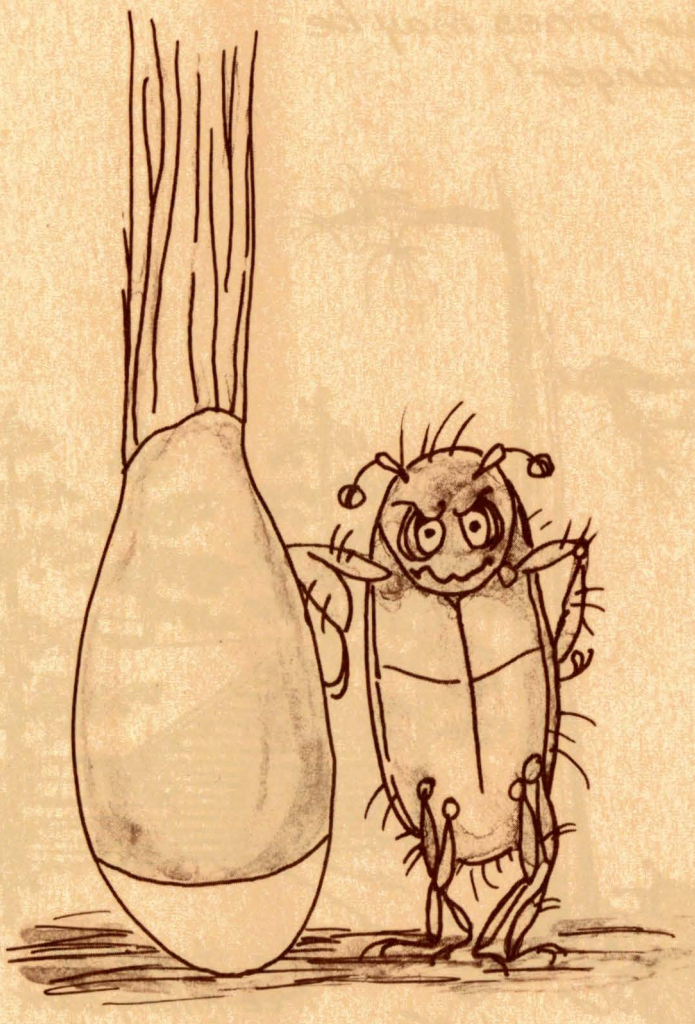
from Mountain Pine Beetles



FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE

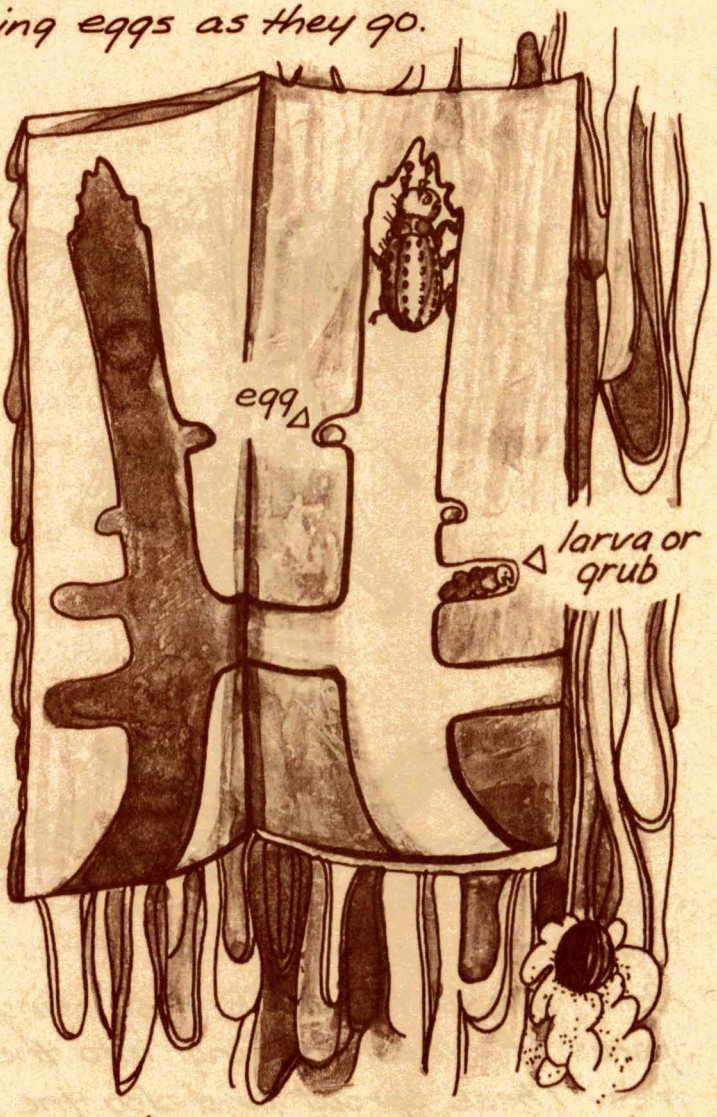
Your pines may be in danger!

The threat of tree-killing bark beetles is always present.



Bark beetles are dark brown insects about the length of a match head.

They bore through the bark and make channels between the bark and wood, laying eggs as they go.



The eggs hatch into soft-bodied grubs, born hungry! The grubs burrow around in the inner bark actually GIRDLING the tree.

As if this isn't enough, they bring spores of bluestain fungi into the tree. These sprout and clog the tree's water-conducting system.

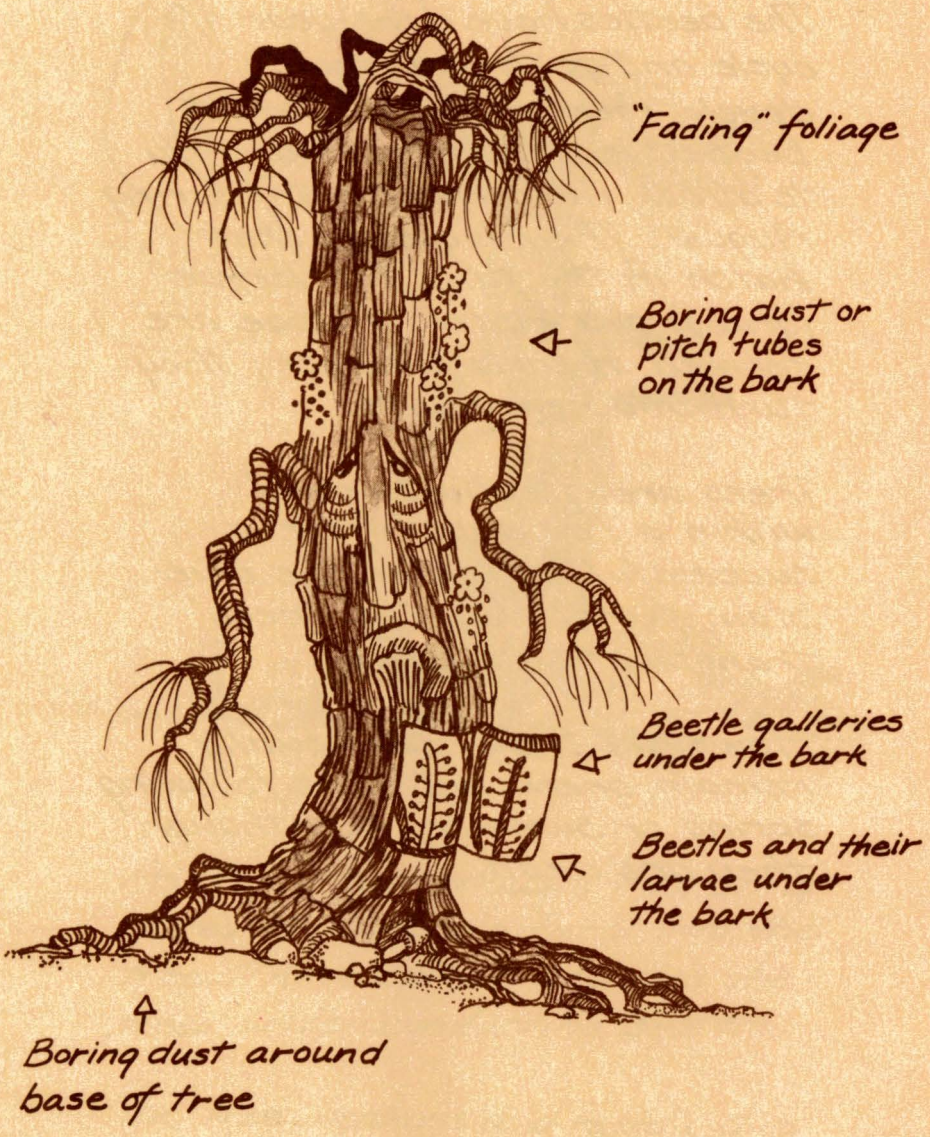
The tree weakens and rapidly dies of thirst.

The beetles have a one-year life cycle and go through four developmental stages. Adult beetles leave old trees and fly to attack new ones mostly during August. They lay eggs that hatch in the fall. The larvae (grubs) overwinter. Pupae are formed in early summer; they turn into new adults.

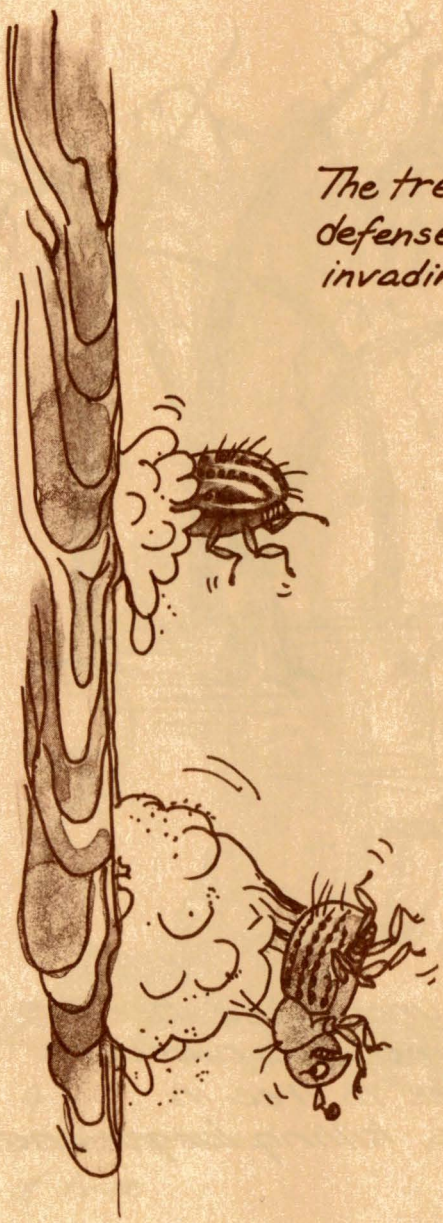
Trees are effectively dead within a few days after a successful attack as the blue-stain fungi clog the trees' transpiration system.

However, the trees usually remain green until the following spring or summer, even though they are dead.

Fortunately, the presence of bark beetles can be spotted by watching for these danger signs:


"Fading" foliage
Boring dust or pitch tubes on the bark
Beetle galleries under the bark
Beetles and their larvae under the bark
Boring dust around base of tree

If allowed to go unchecked, beetles can develop tremendous numbers, moving from tree to tree in successive years, killing larger and larger groups.



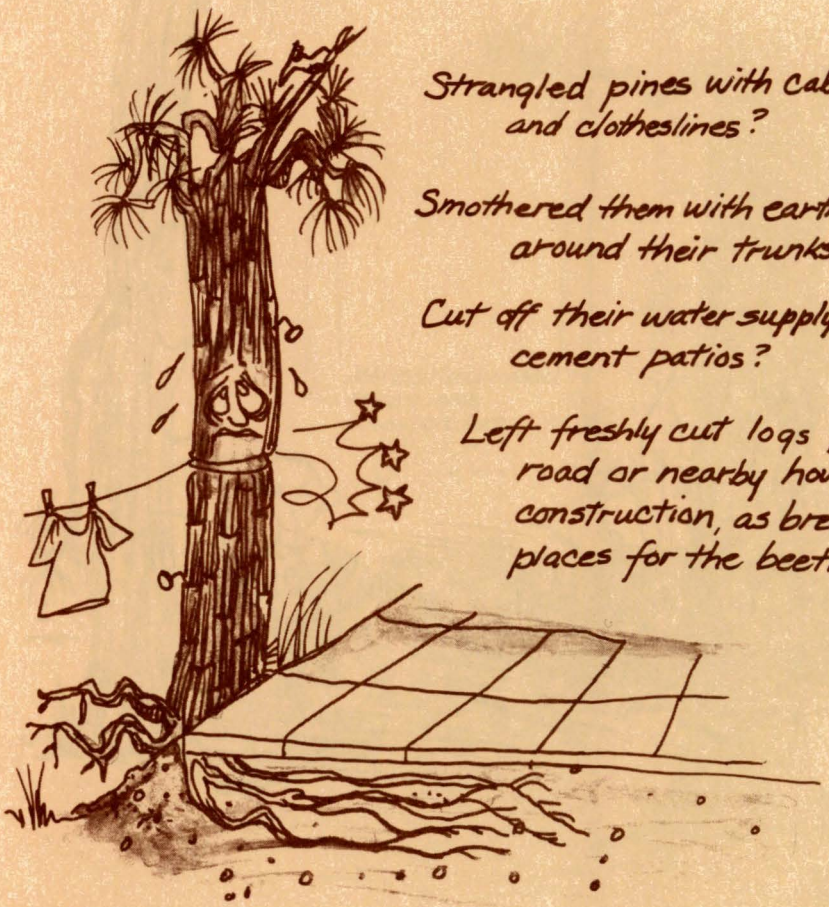
The trees' natural defense is to "pitch out" invading beetles.

Birds – including woodpeckers – and predaceous and parasitic insects also help.

However, sometimes all the defenses fail, the beetles get the upper hand, and into the trees they go!

Sometimes people aid the bark beetles' cause.

How often have you...



Strangled pines with cables and clotheslines?

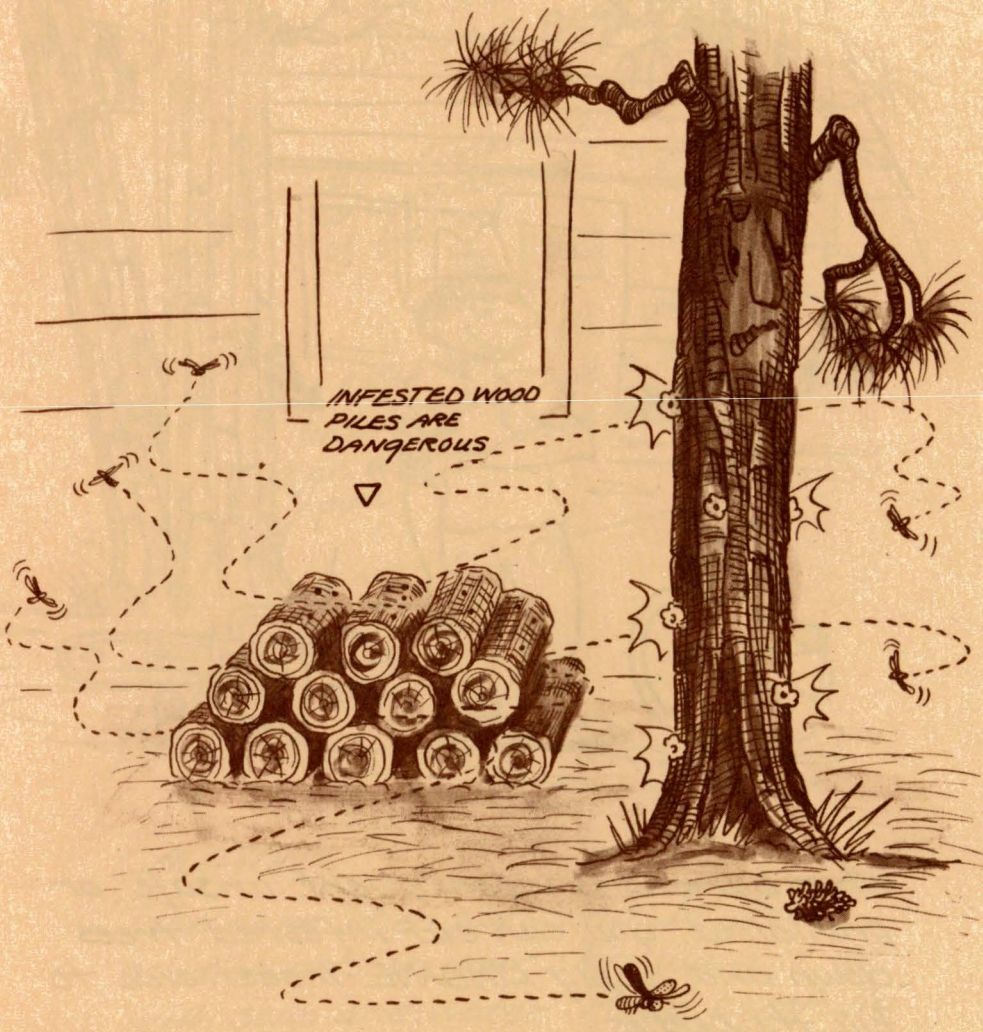
Smothered them with earth piled around their trunks?

Cut off their water supply with cement patios?

Left freshly cut logs from road or nearby house construction, as breeding places for the beetles?

Abused trees are highly susceptible to bark beetles!

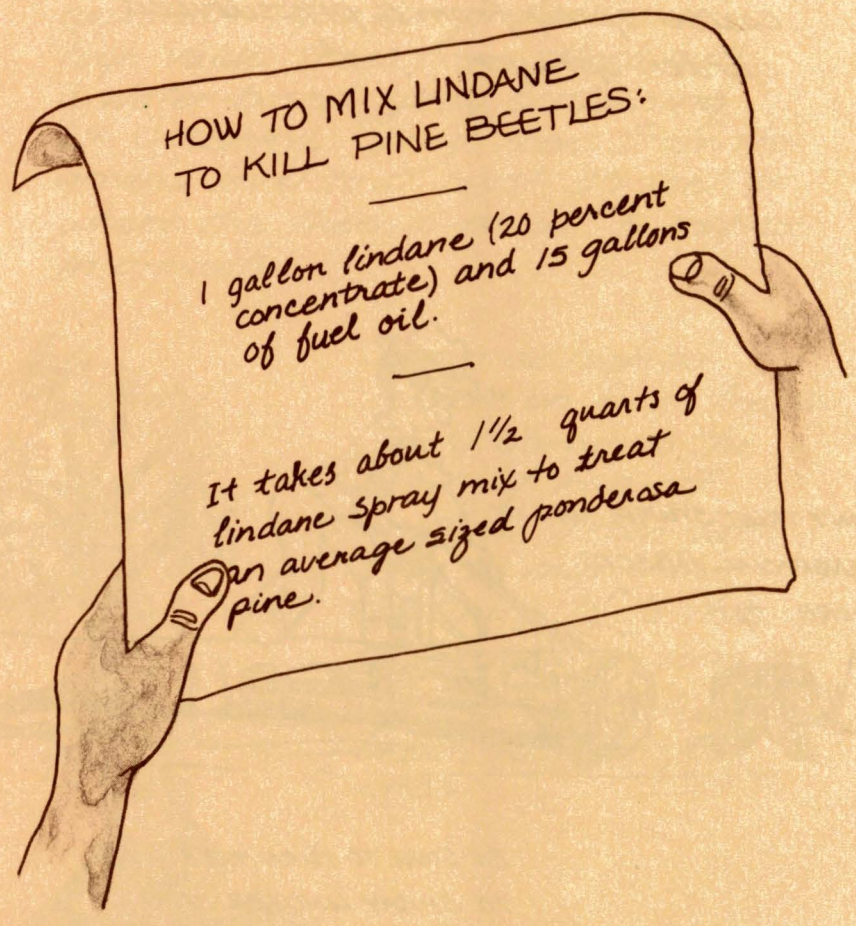
One way to stop the pests is to cut the infested trees down and burn them or peel off the bark.



Any kind of control treatments should be finished by mid-July, before the beetles fly.

When burning is inconvenient, unsafe, or prohibited, you can cut infested trees down and apply LINDANE insecticide to kill the beetles.

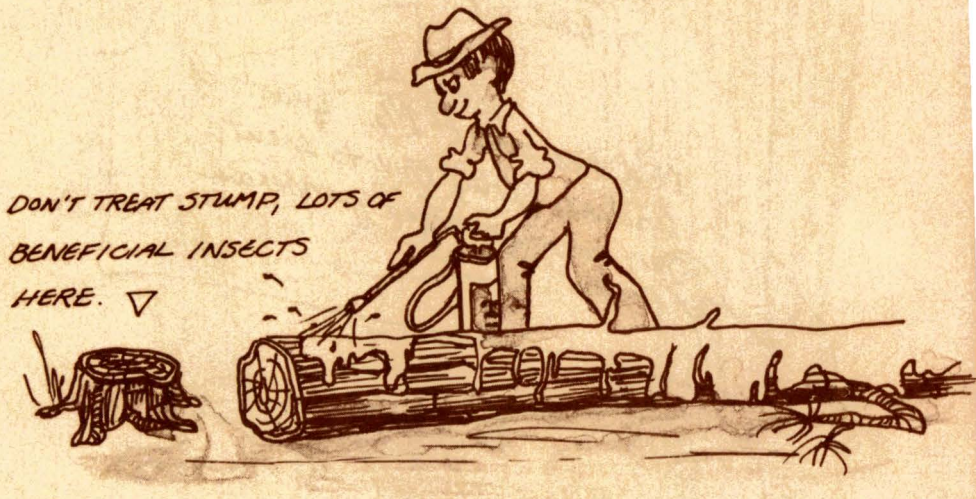
Follow this procedure:


HOW TO MIX LINDANE TO KILL PINE BEETLES:
1 gallon lindane (20 percent concentrate) and 15 gallons of fuel oil.
It takes about 1½ quarts of lindane spray mix to treat an average sized ponderosa pine.

CAUTION:

Take care when spraying. If the solution gets on your skin, wash it off with soap and water. Read carefully and follow the precautions on the label.

LINDANE can best be applied as a coarse spray from a pressurized garden sprayer.



Spray the entire trunk of the tree up to about a 4 inch diameter. No need to spray limbs and branches- no pine beetles there.

Individual tree protection is another approach. You can protect your high-value trees from attack with a water-based spray containing 2% CARBARYL. Spray trees from the ground level to at least 30 feet or where the tree is about 5 inches in diameter.

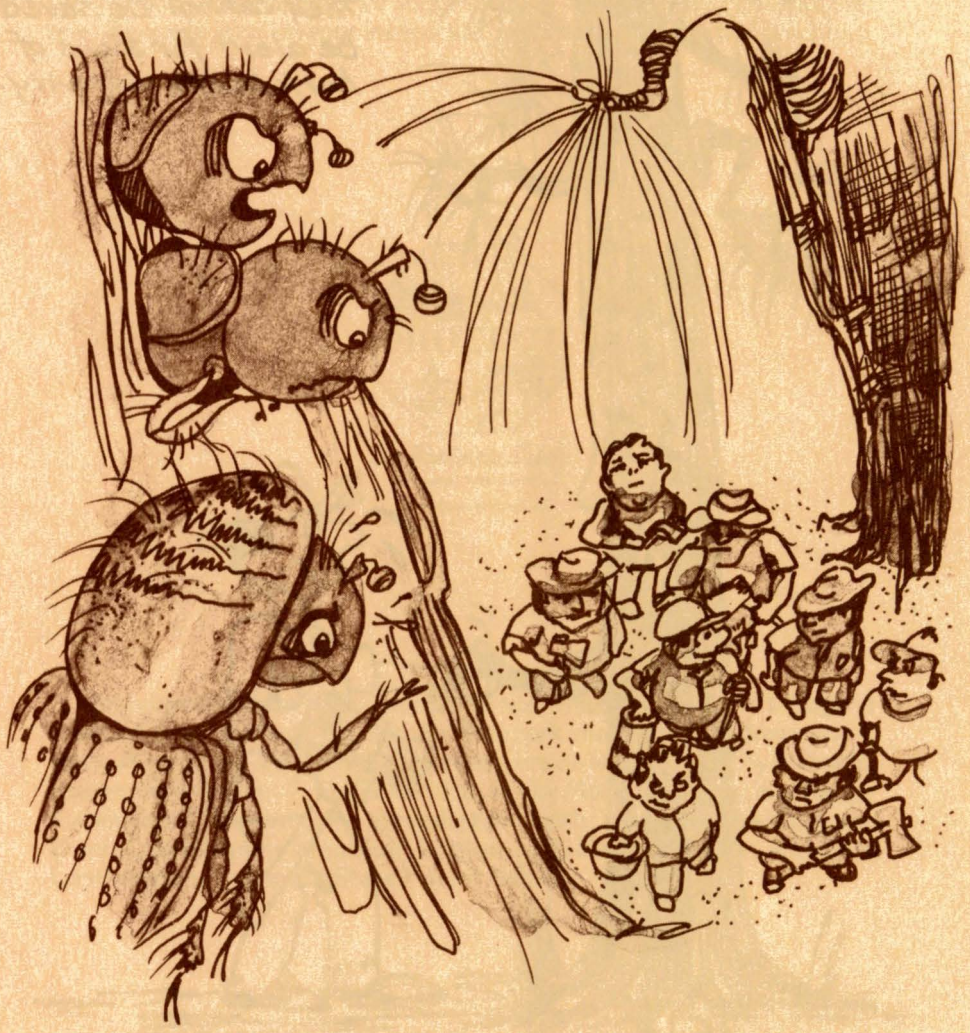
Spray as high as possible on large trees. Apply spray to the point of run-off anytime from late May to mid-July. Continue to do this each year as long as the bark beetle outbreak lasts in your area.

Another chemical, ETHLENE DIBROMIDE (EDB) is often used on federal-state-private cooperative projects. Using this method, infested logs are commonly piled, sprayed, and then covered with plastic sheeting.

All DIRECT CONTROL techniques, including burning and treating with insecticides, are short-term emergency approaches. THINNING dense stands is a commonly-recommended INDIRECT CONTROL technique. This is aimed at changing forest stand conditions, altering the beetles' habitat so outbreaks are less likely to develop.

Consult with your local U.S. or State Forest Service office for thinning guidelines and details of using EDB.

Effective control is a community project. Get together with your neighbors and (1) spray or burn to kill beetles in infested trees (2) spray carbaryl on high-value trees when pine beetle attacks are found in the neighborhood and (3) consider thinning if conditions warrant.



Again, your Forest Service office can help with details.

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KNOW YOUR INSECTICIDE!

This pamphlet suggests several insecticide uses. All insecticide containers carry a label that describes methods of use and required safety precautions. The materials we suggest are all relatively safe. Nevertheless, read the entire label on your insecticide container and follow the directions.

The original version of this pamphlet was written in 1960 by H. Eugene Ostmark and Calvin L. Massey. Dr. Ostmark made the first drawings — many of these are still used. This present version was prepared by Robert E. Stevens and William F. McCambridge, Rocky Mountain Forest and Range Experiment Station, in consultation with George Downing and Donn Cahill, Rocky Mountain Region, U.S. Forest Service, and Dave Leatherman, Colorado State Forest Service.

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